

THE INFLUENCE OF NATURAL ENVIRONMENT USAGE ON STUDENT LEARNING OUTCOMES IN THE CONCEPT OF BIODIVERSITY

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Abstrak: Dengan menggunakan teknik kuantitatif (*Quase Experiment*), penelitian ini berusaha untuk mengetahui dampak dari Pendekatan Lingkungan Hidup terhadap hasil belajar siswa. Sampel dari dua kelas yang berbeda dari salah satu sekolah menengah atas digunakan untuk penelitian ini. Kelas pertama berfungsi sebagai kelas eksperimen yang menerima pengajaran dengan menggunakan pendekatan lingkungan, sedangkan kelas kedua berfungsi sebagai kelas kontrol yang hanya menerima pengajaran melalui ceramah. Ujian pilihan ganda menggunakan 35 pertanyaan dengan alternatif jawaban adalah alat penelitian yang digunakan. Temuan penelitian menunjukkan bahwa pendekatan lingkungan secara signifikan mempengaruhi bagaimana siswa memahami gagasan keanekaragaman hayati.

Kata kunci: pendekatan lingkungan, hasil belajar, keanekaragaman hayati

Abstract: With the aid of quantitative techniques (*a Quase Experiment*), this study seeks to ascertain the impact of the Environmental Approach on student learning outcomes. A sample was taken from two distinct classes from one of the high schools were used for this study. The first class served as the experimental class that received instruction using an environmental approach, while the second class served as the control class that solely received instruction via lectures. A multiple-choice exam uses 35 questions of alternate responses was the research tool employed. The study's findings that the environmental approach significantly influences how students understand the idea of biodiversity.

Keywords: environmental approach, learning outcomes, biodiversity

Introduction

Education is an important issue today, which requires teachers to be active and creative in every nation, especially for developing nations, and education is a joint work that is never finished. The focus of learning activities in schools is the interaction of educators and students in learning a subject matter that has been arranged in a curriculum (Adack, 2013). In carrying out learning activities, educators in addition to mastering teaching materials or materials, of course, also need to know how the teaching material is delivered and what are the characteristics of students who receive the subject matter. The selection of approaches, methods, techniques and learning strategies that are in accordance with the characteristics of the subject and curriculum objectives and the potential of students is a basic ability that must be possessed by an educator (Anggaraini, 2010). The accuracy of the selection of a method will affect the learning outcomes and success of the student in participating in learning. One of the factors that influence the learning process and results is the environment, this environment can be in the form of a physical/natural environment and a social environment (Effrisanti, 2015).

The environment provides a stimulus to the individual and vice versa the individual responds to the environment. In the process of interaction, changes can occur in the individual in the form of changes in behavior. It can also happen that individuals cause changes in the environment, either positive or negative. This shows that the function of the environment is an important factor in the teaching and learning process (Ghufron, 2014). Science is a series of conceptual concepts and schemes that are interconnected and developed from the results of experiments or observations that are suitable for subsequent experiments or observations. The science learning process emphasizes the provision of direct experience to develop competencies to explore

and understand the natural world scientifically (Hamalik, 2006).

Biology subject, is a science that studies objects and issues of natural phenomena that can make the surrounding environment as another alternative to get around the limitations of the classroom. However, in teaching practice so far, most teachers have felt enough with learning in the classroom. The classroom has been one of the elements of educational facilities that must be fulfilled. Especially if the learning model uses multimedia, the dependence on the classroom is very large (Hastjarjo, 2015). On the concept of biodiversity, when the teacher becomes the center of teaching activities, most teachers only transfer knowledge to students without linking to the child's environment and less explore and link the knowledge that children already have from the environment and their experiences with new knowledge that students will learn at school, besides that teaching science, especially biology in schools is less associated with social issues that exist in the student's community. In fact, learning by using vision, saying and doing greatly affects student learning outcomes, of course very different results if only learning is done by reading and listening (Kamaruddin, 2023). Thus, it is natural that the teaching of biology in schools is solely considered oriented to the demands of the curriculum that has been available in the textbook, so that the biology learning material is felt as a burden that must be remembered, memorized, understood, and not felt in relation to everyday life. So it takes a learning approach that optimally empowers all the senses of students in learning (Ichsan, 2023).

One type of learning approach that provides more direct experience and understanding of the natural environment scientifically and involves all of the child's senses is the environmental approach, which is valued by many educators for its ability to increase interest and improve the information being taught in the classroom. The environment is a good way to discuss a concept (Mahmudah, 2011). This type of approach can be used to introduce an object to be discussed in class, and reinforce the material being taught in class. In addition, this approach can provide a point of relevance by showing how learning resources can be used in the real world by students. The method used in the environmental approach is to enhance concepts and motivate students to want to learn more about the subject matter. It is a task for the teacher to create cooperation with each other. Forming cooperation can be beneficial for students if teachers have common goals, good communication, give and take relationships and provide greater coordination between classroom learning and out-of-class experiences (Zulfiani, 2009). This approach is able to apply their knowledge in various challenges, learning outside the classroom builds bridges between theory and reality, school and society, young people and their future. The quality of learning experiences in real situations has the capacity to improve achievement across a range of subjects and to develop better personal and social skills (Maulidia, 2008).

Utilizing the environment for teaching biology has practical and economic advantages. Practical because it is easy to obtain and economical because it is cheap and can be reached by all students (Nugroho, 2023). In addition, the atmosphere will be more fluid, fresh, which will certainly attract learners to continue to seek and discover something and give students a sense of responsibility for achieving learning outcomes, helping them to learn from their successes and failures. Learning outside the classroom provides support for a range of different curriculum areas (Parinussa, 2023). For example, all children have the right to conduct field research as part of their geographical studies (Sarwono, 2005). Linked to the curriculum, these activities provide hands-on and relevant experiences that deepen and enrich learning. Most learning materials can be approached with an environmental approach, depending on how the teacher packages them (Utami, 2012).

One of the materials that can use an environmental approach is biodiversity learning material, this material requires teachers and students to recognize the diversity of living things, both gene, species and ecosystem level diversity. The teacher first explains the concept of biodiversity (Wahab, 2015). Furthermore, students are given tasks or can also be invited directly to observe the surrounding environment. The combination of observation, experimentation and discussion methods will train students to be able to portray the existence of biodiversity as a whole (Wendraningrum, 2014). By utilizing the surrounding environment, students will be more familiar with and utilize the natural potential around them as an efficient learning resource (Yapici, 2012). This study aims to determine the effect of the environmental approach on student learning outcomes.

Method

Quantitative descriptive research is used for this study. Experimental study using non-equivalent group designs is the methodology employed. Purposive random selection was utilized in this study to choose 102 participants, who served as samples and were evenly divided into two experimental groups and a control group. In this study, evaluation was done using exams or questions during the data gathering process. Students took a test that consisted of descriptive questions regarding the idea of biodiversity to ascertain their

learning objectives. While the experimental class received the environmental approach, the control class did not. Traditional assumption tests or linear regression are used for testing.

Findings and Discussion

In this study, the normality test results for the control and experimental classes have a L_{count} value that is smaller than the L_{table} , so the data is directly said to be normal. Then in the homogeneity test for the pre-test and post-test classes which have an F_{count} value which is also smaller than F_{table} , so the data can be said to be the same or homogeneous.

Based on the test results, it can be concluded that the post-test data of both classes lies in the H_1 acceptance and H_0 rejection area, because the value of $t_{\text{count}} > t_{\text{table}}$ or $8.7 > 1.671$ at degrees of freedom n 60 of $n_1 + n_2 - 2$ with $n_1 = 31$ and $n_2 = 31$. In addition, the average post-test results of the experimental class were greater than the control class, namely $73 > 56.9$. So that in this study it can be concluded that there is an influence on biology learning outcomes by using an environmental approach. This can be seen in the average posttest scores of the experimental and control classes.

After learning by using the environmental approach in the experimental class and not using the environmental approach in the control class, the average of the experimental class was higher than the control class. Based on posttest hypothesis testing of experimental and control classes using the t-test, it shows that there is a significant difference between the experimental and control classes. This can be seen in the calculation results obtained that $t_{\text{count}} > t_{\text{table}}$. This shows that there is a significant effect on the use of environmental approaches to student learning outcomes on the concept of biodiversity.

Based on cognitive data of learning outcomes from before and after learning is done using the N-gain test also shows a difference from the two classes. The N-gain value is higher in the experimental class than the control class. This shows that with the environmental approach, the learning process is in accordance with the demands of the curriculum and makes it easier for teachers to teach. The results of observations made of teachers and students have a good presentation. The results of observations of teachers have a percentage of 84.38, while students have a percentage of 79.51. This shows that teachers and students during the learning process using the stages of the environmental approach worked well. During the learning process, the teacher conducts learning in accordance with the stages of the environmental approach. The teacher acts as a good facilitator and motivator. so that learning becomes fun and makes students enthusiastic in participating in the learning process.

In the first stage (developing thinking) the teacher succeeded in making students curious about the phenomena related to biodiversity material. The teacher provides questions that can explore students' curiosity about the phenomena being studied. In addition, the teacher succeeded in making learning more meaningful by making students work alone, discover for themselves and construct their own new knowledge and skills. Meanwhile, students at this stage can observe the existence of living things in the environment around the school and are able to answer the teacher's questions optimally.

In the next to the last stage, students succeeded well in evaluating and analyzing the shortcomings and strengths of each of them during learning activities, so that in the future they can make improvements during the process and the results of the learning. Thus students and teachers know what are the shortcomings and strengths in the learning process so that in the end they realize what should be done in the next learning to be even better. While the teacher concludes about the concept or material from the beginning to the end of learning.

The stages in environmental approach learning can improve the quality and results of learning. Students in learning with this environmental approach are encouraged to be more active, creative and able to analyze each problem in their own way, so that student independence in this learning is increased and students' ability to explain a concept about biodiversity becomes better. Students get meaningful experiences and maximize learning outcomes. Learning with this model also makes cooperation between teachers and students better. because of this good cooperation, the process and learning are better.

Thus, the data from both the pretest and posttest results, the experimental class has a higher average score than the control class. With environmental approach learning, it shows the influence of the environmental approach on learning outcomes. Thus the learning process of the teacher acts as a facilitator and mediator, and encourages students to learn independently and get used to working scientifically.

Utilizing the surrounding environment in the learning process can have a positive impact on student learning outcomes. The surrounding environment includes the natural environment, social environment, and artificial environment. Utilizing the natural environment can expand students' knowledge about flora and fauna, geology, astronomy, and the environment. For example, students can make observations of flora and fauna in the forest, river or beach. In addition, they can also learn about the water cycle, the properties of the

earth, and planetary movements. Meanwhile, the social environment can enrich students' learning experiences regarding culture, history, and local wisdom. Students can learn about traditional arts, folklore, and the local way of life. Thus, students can better understand and appreciate the cultural diversity that exists in the surrounding environment.

Utilization of the artificial environment can also help students to understand the concepts and theories learned. For example, students can conduct simple experiments in the laboratory or use virtual reality technology to visualize concepts that are difficult to understand. In addition, the artificial environment can also be used to develop students' social skills and creativity, such as creating posters or learning videos. Psychologically, the utilization of the surrounding environment in the learning process can increase students' motivation and interest in the subjects studied. This is because interesting and fun surroundings can help students to be more active and participate in the learning process. In addition, pleasant learning experiences can also strengthen students' attachment to the surrounding environment. Neurologically, the utilization of the surrounding environment can affect students' brain activity. An interesting and diverse environment can trigger students' curiosity and creativity, which can increase brain activity and strengthen connections between neurons. In addition, enjoyable learning experiences can also increase the production of dopamine, which plays a role in reinforcing positive learning experiences and increasing students' motivation to continue learning.

From a psychological point of view, the use of the surrounding environment can have a positive effect on student learning outcomes. An attractive and conducive surrounding environment can stimulate and motivate students to learn. In addition, the use of the surrounding environment can also enrich students' learning experience by providing direct experience that is more real and relevant to the material being studied. According to cognitive learning psychology theory, effective learning involves the interaction between existing knowledge in students' memory and new information. Utilizing the surrounding environment can help evoke existing knowledge in students' memory and expand new associations in learning. This can be seen in examples of utilizing the surrounding environment in biology learning such as visiting national parks, zoos, or even making direct observations in nature.

In addition, the utilization of the surrounding environment can also affect the emotional state of students. A pleasant and interesting environment can increase students' sense of pleasure and interest in learning, thus strengthening their motivation to learn. A friendly environment can also help reduce student stress, which can affect concentration and motivation to learn. In utilizing the surrounding environment to improve student learning outcomes, teachers should plan learning activities that are integrated with the surrounding environment in a systematic and structured manner. This can help students understand the material better and develop more effective learning skills. In addition, teachers also need to pay attention to safety and health aspects when conducting activities in the surrounding environment to minimize the risk of injury or health problems.

The environment-based approach utilizes the surrounding environment as a learning resource that can motivate students in learning the concept of biodiversity. An interesting and conducive surrounding environment can stimulate and motivate students to learn. For example, teachers can take students to places such as zoos, national parks, or forests to see firsthand a wide variety of species of living things. Another approach is the integrative approach, which integrates the concept of biodiversity into various subjects. By integrating the concept of biodiversity into other subjects, students can understand the importance of biodiversity in everyday life and the impact of human behavior on biodiversity.

In addition, the constructivist approach can also be used in learning biodiversity. In this approach, students are invited to be active in learning by encouraging them to develop their own understanding of the concept of biodiversity. Students are also encouraged to develop critical thinking skills, create questions and seek their own answers by making observations, experiments and research. By using the right approach, students can more easily understand the concept of biodiversity and develop effective learning skills. In addition, an approach that integrates the surrounding environment can help students to understand the concept of biodiversity in a practical way and is relevant to everyday life, thus strengthening students' motivation in learning this concept.

From a psychological point of view, the environmental approach used in learning can affect students' understanding of the concept of biodiversity through several aspects. First, through the use of appropriate environments, students can build connections between abstract concepts such as biodiversity with real experiences in the surrounding environment. This can strengthen the association between concepts and experiences, making it easier for students to remember and understand the concept. Second, the environmental approach used in learning can affect students' motivation and interest in the concept of

biodiversity. An interesting and challenging environment can increase students' interest in the lesson and make them more motivated to learn further. Conversely, an uninteresting or too difficult environment can decrease students' interest and motivation to learn.

The environmental approach can also affect students' ability to pay attention and focus on the learning material. A crowded and noisy environment can distract students' attention, hindering their ability to understand the concept of biodiversity. Conversely, a quiet and well-organized environment can help students to focus more and understand concepts better. Then, the environmental approach used in learning can affect students' ability to develop social and collaborative skills in understanding biodiversity concepts. An environment that encourages interaction and discussion between students can help them to support each other and build shared understanding. Conversely, an overly competitive or individualistic environment can hinder students' ability to cooperate and build shared understanding.

Overall, the environmental approach used in learning can affect students' understanding of the concept of biodiversity through various psychological aspects such as connections between concepts and experiences, motivation, attention, social skills, and collaboration. Therefore, it is necessary to pay attention to choosing the right environmental approach in learning to improve students' understanding of the concept of biodiversity.

Conclusion

Based on the results of research and data analysis, it can be concluded that the use of environmental approaches can have an influence on students' biology learning outcomes on the concept of biodiversity. The environmental approach can also affect students' ability to pay attention and focus on the learning material. A crowded and noisy environment can distract students' attention, hindering their ability to understand the concept of biodiversity. This can be seen from the average posttest score, the experimental class is greater than the control class. This is evidenced by the obtained tcount that greater than the ttable at a significant level of 5%. The effect of the treatment is also seen from the average N-Gain for the experimental class of 0.44 and the control class of 0.25.

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